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ARMY ASSESSMENT OF CONGRESSIONAL BUDGET OFFICE STUDY: “The Army’s Future Combat Systems Program and Alternatives,” August 2006

Summary: The CBO Report is Seriously Flawed.

The Congressional Budget Office (CBO) report purports to examine the near- and long-term implications of the Army’s Future Combat Systems (FCS) program. FCS is the Army’s first major modernization initiative in almost four decades. The program is designed to address current-force capability shortfalls that prevent the Army from going anywhere, anytime, without forward basing, and then fighting upon arrival.

FCS Purpose: Iraq Example

The situation in Iraq provides a vivid real-world example of the type of capability that FCS would make possible and, in fact, already is beginning to provide. Indeed, Soldiers and Marines are using an early iteration of the FCS Small Unmanned Ground Vehicle (SUGV), the PacBot, to navigate and search buildings, alleyways and caves that might be terrorist redoubts.

In the modern, urban battlefield, information is the premium asset; and better situational awareness is crucial. For example, knowledge of an Improvised Explosive Device (IED) or roadside bomb can mean, literally, the difference between life and death. That’s why the number of counter-IED robots in theater has increased from just 183 when this long war on terrorism began five years ago to more than 4,000 today. One such robot is the PacBot, a precursor FCS technology.

Alternatives

Because FCS modernization costs are significant, some analysts have asked whether there are other, more cost-effective options that the Army might pursue. Thus, in an August 2006 report, the CBO proposes four alternative options for modernizing the Army. These options do not meet operational requirements; nor are they cost effective. They do not adequately modernize the Army; and they include significant costs not accounted for by the CBO report.

Current Modernization Path

A fifth option, which is the Army’s current approach to modernization, is not examined in the CBO report. Yet, extensive Army analysis shows that FCS is the most viable and cost-effective way to modernize the Army for the 21st Century. *This makes FCS modernization the Army’s most critical investment requirement.*

21st Century Operational Requirements Driving Army FCS Modernization

National Defense Strategy

Force capabilities include:

- Projecting and sustaining forces in distance anti-access environments

National Military Strategy

- Integrated
- Decentralized
- Decision Superior
- Expeditionary
- Adaptable
- Lethal
- Networked

Quadrennial Defense Review 2006

- Enhance multipurpose force capabilities for irregular warfare
- Expand Army multipurpose capacity
- Continuous modernization
- Exploit Reachback capabilities
- Operational maneuver & sustainment of ground forces at strategic distances
- Increase time-sensitive operations capabilities
- Accelerate FCS spin-outs





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CONGRESSIONAL BUDGET OFFICE REPORT'S ANALYTICAL SHORTCOMINGS

1. The CBO report provides no analysis of the 21st-century strategic environment.

But Army modernization requirements are not developed in a vacuum; they are based on real-world operational imperatives and real-world constraints on the current force. This real world constitutes the 21st-century strategic environment in which the Army must operate; and it is fundamentally different from the 20th-century Cold War environment.

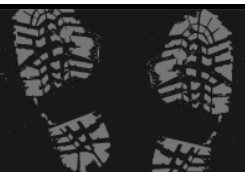
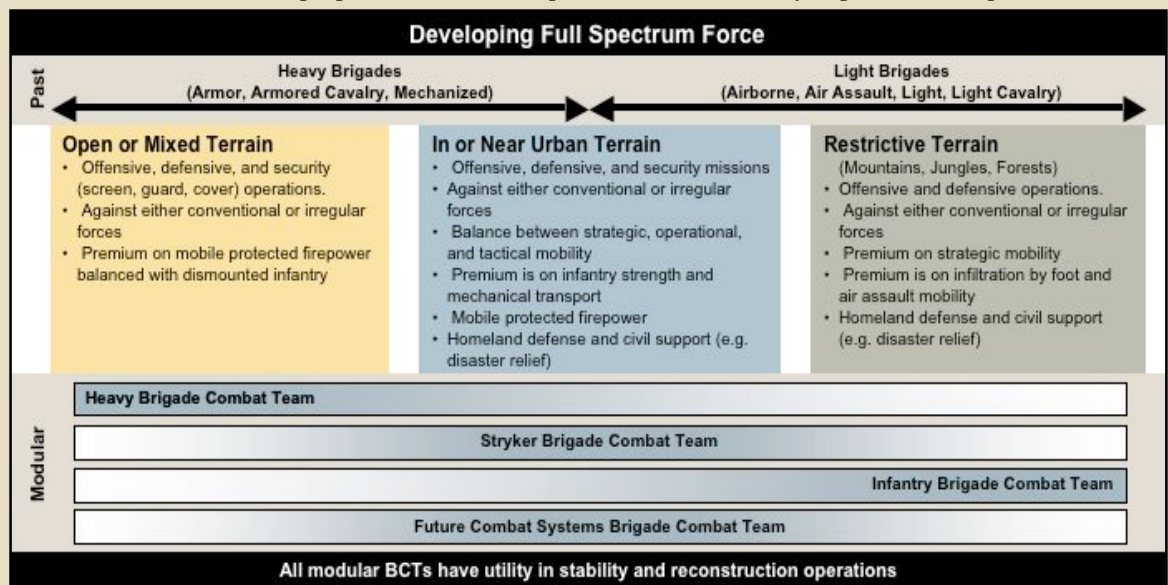
Non-State Actors. In this new millennium, the Army no longer faces only conventional armies, which operate within clearly established political boundaries. Non-state actors who employ irregular tactics, terror, and asymmetric warfare are becoming increasingly common. The Army is forced, therefore, to confront a broad array of potential challenges ranging from traditional, full-scale combat to irregular warfare.

The CBO report does not account for this dramatically altered strategic landscape; consequently, its recommendations are deficient. An Army that was designed for the Cold War must be transformed to address the more uncertain and unpredictable challenges of the 21st Century. The CBO report's proposed upgrades to the current force are inadequate to that task.

2. The CBO report provides no analysis of the Army's operational requirements.

But without such an analysis, it is impossible to adequately assess any proposed modernization option or alternative. Operational requirements must drive any modernization strategy and budget; otherwise our troops will be inadequately prepared for likely contingencies. Indeed, Soldiers are dying today in Iraq and Afghanistan; delays in funding critical modernization requirements will cost lives in future conflicts.

Networked Force. By omitting any reference to operational requirements, the CBO report implicitly suggests that, with a few caveats, all modernization options are basically equal and worthy, and that cost ought to be the determining factor. But this is patently untrue. The National Defense Strategy and Quadrennial Defense Review have tasked the Army with becoming rapidly deployable, highly mobile, self-sustainable, full-spectrum capable, fully networked, information-based, and integrated across the Army and the Joint force. None of the CBO's proposed alternative options fulfill these key, operational requirements; FCS modernization does.





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3. The CBO report provides no context assessing the question of affordability; yet it suggests that FCS modernization is too expensive.

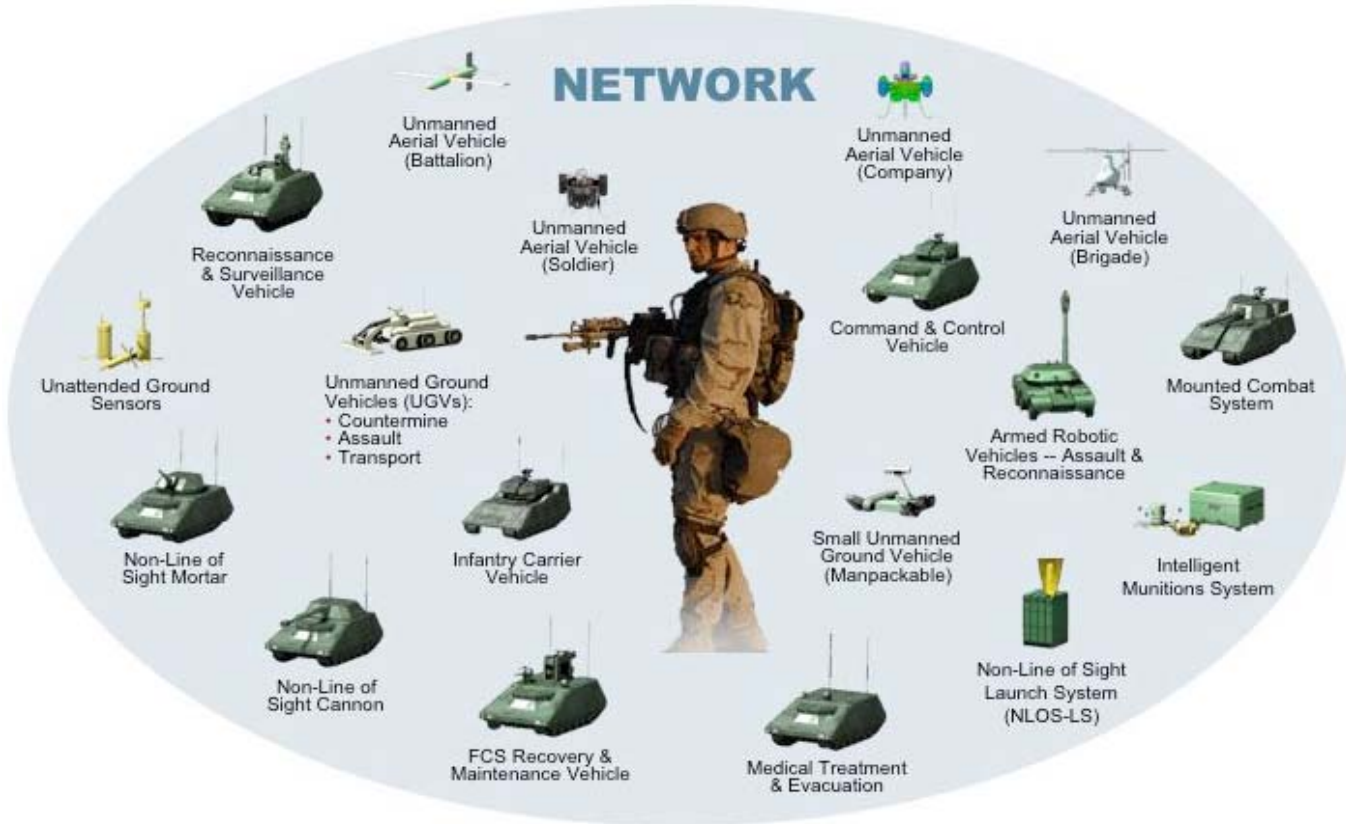
The reason: by 2015, FCS reportedly will consume 40% to 50% of the Army's procurement budget. This "would leave little money for purchasing other weapon systems (such as helicopters) or needed support equipment (such as generators and ammunition)," the CBO writes.

1 + 1 + 18 Systems, Not 1 System

But FCS modernization is not just another single-system, stand-alone program. Instead, FCS breaks the traditional stovepipe procurement paradigm; 18 synergistic systems are now being designed and procured as an interdependent system of systems. These 18 integrated systems are designed to be nodes of an advanced FCS network, which will provide Soldiers and leaders with near real-time situational awareness.

Because FCS modernization is comprehensive, it is not surprising that the program ultimately will account for a large share of the Army's procurement accounts. This is necessary, true and desirable; it will save taxpayers time and money—in fact, it already has.

FCS Brigade Combat Team 1 Soldier + 1 Network + 18 Integrated Systems



Spin Out 1 2008

Spin Out 2 2010

Spin Out 3 2012





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Cost Savings

Our analysis shows that FCS modernization will reduce system development and demonstration (SDD) costs by an estimated 37%, or \$12 billion, while shrinking the development-to-field timeline by about 30 percent. Single-system, piecemeal modernization—as opposed to comprehensive, synergistic, FCS modernization—is more costly and time consuming.

For example, with a common chassis, development costs for all eight FCS Manned Ground Vehicles (MGVs) amount to some \$6 billion. This is roughly the same amount of money that it cost the Army to develop three current-force vehicles—the Abrams tank, Bradley fighting vehicle, and Multiple Launch Rocket System—combined.

Common Systems, Common Parts. The reason for this cost differential is simple: traditional stovepipe procurements cannot exploit efficiencies from design and production commonality. These efficiencies, though, are an integral part of the FCS modernization effort. They include a common chassis for all eight MGV variants and other common components.

Coupled with more modern and efficient technologies, these efficiencies significantly reduce logistical, maintenance and lifecycle support costs. An FCS Brigade Combat Team (BCT), for instance, will consume 10% to 30% less fuel and operate with 50% fewer mechanics than a Heavy BCT today. The CBO report does not account for any of these FCS cost savings.

Manpower Savings

Because FCS modernization automates tasks that, today, are highly labor intensive, it significantly reduces the need for support troops. This is important because manpower costs account for the greatest share of the Army's available budget. An FCS BCT will have 500 fewer Soldiers, but twice as many infantrymen in squads—that is, more tooth and less tail—than a Heavy BCT today. The CBO report does not account for these FCS savings.

Relative Cost

FCS is the *only* Army program that ranks among the 10 most expensive Department of Defense weapons programs, and that list does not include the considerable investments in missile defense. At a time when conflicts are and will remain ground intensive, with the Army bearing the brunt of the burden in Iraq and Afghanistan, ground-force modernization would seem a reasonable and necessary cost to bear. In almost any likely conflict, America cannot prevail without quickly sending in and sustaining boots on the ground.

4. The CBO report does not accurately gauge the true cost of its proposed alternative options.

One report option, for instance, recommends integrating an electronic network onto current-force vehicles, many of which are more than four decades old. The CBO makes this recommendation without addressing any of the formidable logistical and technical challenges involved in such an undertaking. There are, for example, ever growing parts obsolescence issues that must be resolved.

FCS Leveraging Effect. The Army actually is leveraging FCS to upgrade several current-force systems with more modern technologies. This is a financial and capability benefit of FCS modernization. However, the cost of integrating the complete future network onto current-force vehicles *without* any FCS leveraging effect would be prohibitive. The CBO report does not identify or measure this cost. In fact, the high cost, in dollars and time, of integrating 20th Century vehicles with 21st electronics is an important reason that the Army has opted instead to pursue FCS modernization: It's more cost- and time-effective.

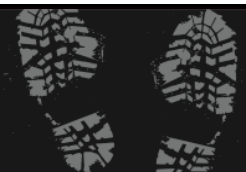
Top 12 DoD Weapons Programs

(Funding in billions of dollars)

1. Joint Strike Fighter	AF	5.3
2. Future Combat Systems	Army	3.7
3. DD(X) Destroyer	Navy	3.4
4. C-17 Cargo Aircraft	AF	3.1
5. F-22A Fighter	AF	2.8
6. Virginia Class Submarine	Navy	2.6
7. F/A-18E/F Super Hornet	AF	2.4
8. V-22 Osprey	USMC	2.3
9. C-130	AF	1.6
10. E/A-18G Super Hornet	AF	1.3
11. LHA Replacement	Navy	1.2
12. CVN-21	Navy	1.1

Source: Center for Strategic and Budgetary Assessments, based on DoD data

* List does not include missile defense





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5. The CBO report does not assess the operational benefits of a comprehensive and synergistic approach to modernization.

FCS modernization is unique in that it fully integrates all of the Army's manned and unmanned platforms into a dynamic whole, which, operationally, is greater than the sum of its parts. Soldiers in a tank today, for instance, cannot instantaneously access other capabilities that are tied into the network, because the network does not yet exist. Soldiers in an FCS Manned Ground Vehicle (MGV), though, will be able to do just that.

That's why platform-to-platform comparisons are inadequate and misleading: They simply do not capture the full range of operational benefits created by FCS modernization. The CBO report focuses on individual platforms, not the FCS Brigade Combat Team; it is, therefore, incomplete and misleading.

The Army's comprehensive approach plans for 15 BCTs with the full suite of new FCS capabilities; all other BCTs will have some FCS capabilities. The Army is adopting FCS technologies through four incremental "spin-outs" to the current force via the Evaluation BCT starting in 2008.

6. The CBO report does not accurately depict the state of FCS modernization.

Costs

The CBO report asserts "the FCS program has already experienced significant cost growth since it entered the SDD [Systems Development and Demonstration] phase in spring 2003." This is misleading. FCS costs increased in 2004 because the Army increased the size and scope of the program to accelerate the delivery of modern capabilities to frontline troops. Actual program costs have been consistent: \$120 billion (FY03 constant dollars) for Research, Development, Test and Evaluation (RDT&E) and procurement for 15 FCS Brigade Combat Teams (BCTs) in the next two decades.

Technology Maturity

The CBO report asserts that FCS technologies may be insufficiently mature to sustain continued program execution. But the In-Process Preliminary Design Review found in August 2006 that critical FCS technologies are maturing on or ahead of schedule; program risks are well understood; and these risks are being actively—and successfully—managed.

DoD Standard. By December 2006, nearly 80% of critical FCS modernization technologies will be fully mature in accord with DoD standards; by October 2008, *all* critical technologies will have reached this standard. Lessons learned from the field in Iraq and Afghanistan continually inform technology development. FCS technologies, likewise, are developed to help address critical mission requirements.

ENHANCING CURRENT U.S. GROUND FORCES THROUGH INTEGRATION OF FCS TECHNOLOGIES

SPIN OUT ONE 2008

Introduce the Network Sensors/Shooters

- Unattended Ground Sensors
- Non-line of Sight Launch Systems
- Intelligent Munitions

Increases situational awareness and provides actionable intelligence.

SPIN OUT THREE 2012

Unmanned Ground Vehicles

- Manpackable Robotics
- Assault & Reconnaissance
- Countermine and Transport

Improves Soldier protection and weapons precision by using more unmanned sensors.

SPIN OUT TWO 2010

Unmanned Aerial Vehicle Payloads

- Aerial Transport Layer of the Network

Improves Soldier protection and weapons precision by using unmanned aerial sensors.

SPIN OUT FOUR 2014

Complete the Network

Reinforces other spin outs and improves the accuracy and responsiveness of joint systems supporting our Soldiers.

ALL SUPPORTED BY THE NETWORK





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Cost Growth

The CBO report asserts that FCS modernization costs may grow significantly because the program entered the systems development and demonstration (SDD) phase prematurely. But this analysis is based on the old stovepipe procurement paradigm, which, historically, has led to cost overruns and program delays. FCS modernization, though, breaks this procurement paradigm by employing a more reliable, incremental approach to development.

Incremental Approach. This incremental approach minimizes development risk by breaking down the program into more manageable parts or increments, each of which is subject to a complete development cycle review. These incremental reviews are thorough and comprehensive; they even include Soldier testing. They give the Army an early and detailed assessment of FCS development efforts. Problem areas thus can be identified and resolved early on, with minimal time and at minimal expense.

In traditional stovepipe procurements, by contrast, many problems are identified late in the development cycle, when they are more costly to correct. In fact, this is a major source of cost growth in many past procurement programs. But more than 39 months, or 25%, into SDD, FCS modernization remains on cost and on schedule—and every indication so far is that the program will remain on track.

7. The CBO report erroneously asserts that FCS modernization “will not significantly reduce deployment time.”

The report cites one solitary example involving a hypothetical deployment to East Africa (Djibouti) to buttress the false claim that “an FCS-equipped force would yield at most a 19% reduction in the time needed to deploy heavy brigades by air.” This example, though, relies on a set of conditions that are by no means likely or probable.

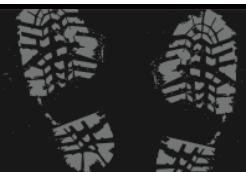
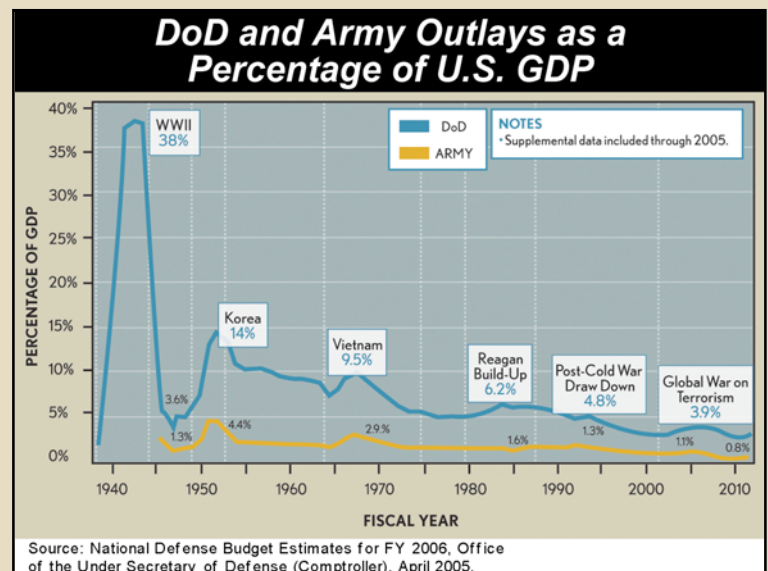
Unlikely Conditions. For example, it is assumed that all units will deploy either by air or by sea. But history shows that brigade or larger units typically deploy both by air and by sea. Moreover, Djibouti requires no intermediate staging bases and inter-lift refueling—unlike more probable hotspots in the Middle East and Southeast Asia. These unlikely conditions all serve to unfairly minimize the operational benefits of FCS modernization.

Inaccurate Assumptions. The Djibouti example also relies on a set of assumptions that simply aren't accurate. For example, the CBO report concludes that the Army could move just 20 tanks a day to Djibouti. This is true of Army tanks today, because they are heavy and unwieldy.

However, it will not be true for FCS vehicles, which are specifically designed to be much more transportable. Indeed, an FCS BCT could move to Djibouti 60 mounted combat systems per day, three per C-17 aircraft. But again, the CBO report does not acknowledge this fact.

TRADOC Analysis. Extensive analysis done by the Army's Training and Doctrine Command (TRADOC) shows that an FCS-enabled force is significantly more deployable and maneuverable than the current heavy force. The FCS force can close more rapidly; it requires fewer resources; and it more efficiently leverages air transport assets.

The CBO report makes no reference to this analysis, but TRADOC provides a telling real-world example: With FCS, the 4th Infantry Division would have been able to deploy 55 mounted combat vehicles into Iraq versus the 22 that were available at the onset of Operation Iraqi Freedom.



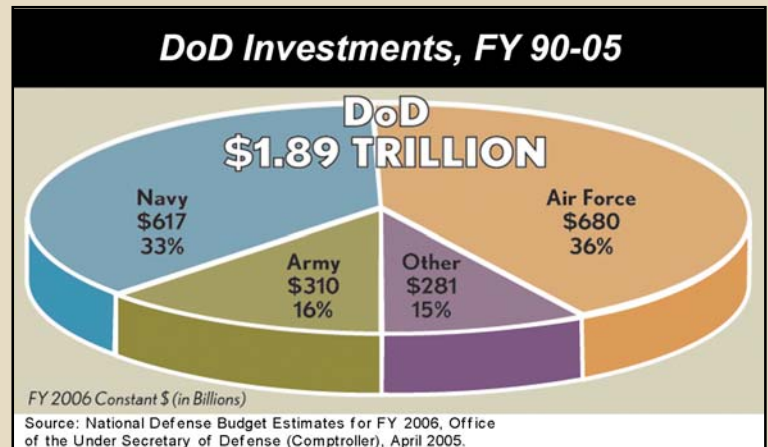


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Djibouti Example. To take the hypothetical deployment to Djibouti, an FCS brigade would have a 100% increase in capability in 2.5 days versus an armored battalion task force. This example presupposes 50 sorties necessarily involving 420 aircraft for the armored brigade and 370 aircraft for the FCS brigade. These aircraft would deliver to the battlefield between 50 and 75 Abrams tanks and Bradley fighting vehicles versus 150 FCS mounted combat systems.

The precise numbers will vary depending on operational contingencies and requirements; still the fact remains: An FCS-enabled force will significantly reduce deployment time. Transportability improvements may be most pronounced for lead units at the tip of the spear; but this is the decisive point at which operations can be won or lost.



Conclusion

FCS modernization is absolutely imperative for the Army and indeed, the nation's joint ground force. FCS is enabling the Army to transform from a Cold War force to a more nimble and capable 21st-century force. The Army welcomes a vigorous and substantive debate on the merits of our current path forward. The CBO report, unfortunately, is not up to the task. The report lacks the breadth and depth of analysis necessary to fairly and accurately assess Army modernization efforts.

Indeed, the CBO report does not address the new 21st-century strategic environment and changing operational requirements that are forcing the Army to modernize. But no modernization option or alternative can be fairly adjudged without understanding what, precisely, needs to be achieved. Modernization costs are alleged to be too high, but readers are given no context in which to evaluate this claim.

The report also does not accurately depict the state of FCS modernization: Cost and technology problems are alleged to exist, when, in fact, program costs and technologies are being well managed in accord with Army plans and expectations.

Modernization of the nation's joint ground force is not an option today; it is a national imperative. Scaling back Army modernization efforts to fit a preconceived budget limit will not change the real-world requirements that are driving the Army's current path forward. Postponing FCS modernization will force upon future Soldiers and Marines the price of ill-preparedness. We cannot as a nation permit this to happen. We must holistically modernize the Army now.

